

CIVIL AERONAUTICS JOURNAL



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CAR Violations Show Drop In Proportion to Pilot Total

Annual Report Indicates Offenses by 1,575 Pilots

Nothing seems to be so public as an airplane, at least to the 1,575 pilots who last year violated a Civil Air Regulation. Everybody tells on a misbehaving pilot, they are their own best cops, and there seem to be no hard feelings as a result, according to an annual report on violations released by Brig. Gen. Donald H. Connolly, Civil Aeronautics Administrator.

The report, covering the year ending June 30, involved fines totalling \$10,725, and indicates that on a percentage basis the number of violations have decreased in spite of the great increase in flying traffic.

"Reports we receive of violations frequently come from other pilots, airport managers, and from landmen," General Connolly states. "The fact that pilots will report other fliers for infractions of the safety rules points up the almost fanatic devotion to safety that most people in aviation have today. We would hesitate to wish for such a system in the regulation of automobile traffic, but we can say that it works to the advantage of all in aviation."

Proportionate Decrease

Proportionately, the number of violations are decreasing, according to Glen Woodmansee, Chief of the Enforcement Section. The number of pilots has increased phenomenally due to the C. A. A.

pilot training program, but the number of violations per hundred pilots is lower.

As usual, the exuberant, new pilots, those holding student permits and private licenses, are the greatest offenders, accounting for 1,014 violations out of the 1,575. The urge to put an airplane in its paces, listed as "acrobatics" in the report, caused the greatest number. Student pilots to the number of 230 let themselves go in this classification and private pilots scored with 88 violations. That included flying below 1,500 feet, and stunting over an airport, over a congested area, over open-air assemblies and without a parachute.

Nine careless pilots flew over restricted zones, some of them over the White House in Washington, where the put-put or roar or airplane engines so disturbs the councils of state that the surrounding area has been placed out of bounds. This is a particularly good area not to fly in, considering the very large number of people on the ground who watch and tell.

Pilot laziness in not disconnecting the dual controls before taking up passengers or friends was another violation that piled up, according to the report. Student and private pilots were the greatest offenders here, too, with 113 of the 128 violations in their columns.

Take Up Passengers

So eager are the young pilots to prove their ability as pilots, especially to their friends, that 22 of them took up pas-

(See VIOLATIONS, page 230)

Instructor Training To Be Emphasized In Fall Program

By emphasizing the training of instructors for civilian and military pilot-training schools during the fall program now beginning, the Civil Aeronautics Administration will help to prevent the threatening bottleneck in instructor-production, officials believe.

The need for production of more instructors arose when the Army and Navy decided to step up their pilot production from 12,000 to 30,000 a year, Administrator Donald H. Connolly said, in announcing that the emphasis in the fall program will be on advanced training.

If an instructor bottleneck were allowed to develop, the C. A. A. program would not be able to feed into the military services young flying-school graduates who are currently joining up at the rate of more than 1,000 a month.

There will be about 500 college centers participating in the fall program. Reduction of the elementary scholarships has imposed a reduction in the number of flight contractors for the fall to about 520. In the secondary courses, about 200 colleges and 200 flight contractors will be engaged. The cross-country and instructor courses will be given by about 135 flight contractors.

Quotas for the fall session show that about 8,500 students will be enrolled in the elementary (formerly private) course, 3,500 in the secondary course, 1,800 in the cross-country course, all of the college phase. About 1,600 students finishing up the summer session's cross-country course will follow through with the instructor course in the fall.

About 300 students are expected to take the advanced courses of the non-

(See FALL TRAINING, page 240)

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Brown Takes Office
As C. A. B. Secretary

Darwin Charles Brown has been sworn in as Secretary of the Civil Aeronautics Board. His predecessor, Thomas G. Early, left that post to become Executive Assistant to Colonel William J. Donovan, Coordinator of Information. Mr. Brown leaves the post with the Reconstruction Finance Corporation where he was Administrative Assistant of American Republics Aviation Division, Defense Supplies Corporation.

Violations

(Continued from page 229)

sengers, entirely against the rules governing their particular licenses.

The report shows a surprising facility of the C. A. A. inspectors to cover the country in policing the airways. Officials of the enforcement section say that reports of violations come in from all sorts of places. Inspectors in the field receive and investigate every complaint, and are themselves inflexible in enforcing safe flying rules.

On the 1,575 violations during the year ending June 30, the C. A. A. collected \$10,725. Most of this came in from pilots who responded voluntarily to the notification from the C. A. A. enforcement section. Where necessary, the section imposes the fine and the Attorney General institutes suit to collect if the pilot does not voluntarily pay. Last year \$1,750 was collected in this way. Penalties range from small fines to withdrawal of licenses for various periods, and sometimes for good.

Only 49 violations were ascribed to airline pilots and 205 to pilots holding commercial licenses. Violations were charged to 204 uncertificated airmen, pilots who neglected to obtain licenses.

On recommendation of the Administration, the Civil Aeronautics Board revoked 77 licenses of airmen and suspended 33. Nine pilots, after being called on the carpet for violations, voluntarily surrendered their licenses.

—Keep 'Em Flying—

Legislative Action

Listed below are recent measures concerning aeronautics acted upon by Congress. A complete list of all proposed legislation appeared in Civil Aeronautics Journal, volume 2, No. 11, dated June 1, 1941, and subsequent issues.

H. R. 5412—NATIONAL DEFENSE; both Senate and House agreed to conference report on the bill making supplemental appropriations for the national defense for the fiscal year ending June 30, 1942.

S. 1840—DEFENSE HIGHWAYS; the bill providing for construction of defense highways, including flight strips, was passed by the Senate on August 15, 1941; in the House it was referred to the Committee on Roads.

Toward
Safer
Flight:

The high degree of safety in civil aviation today must be credited in large measure to the careful testing and certification of airmen. No matter how much attention is paid to the safety factor in the construction of an aircraft, the maximum safety is not attained unless a well-trained and qualified person maintains and operates it.

The Civil Aeronautics Administration has been entrusted with this important function by law. It fulfills it by issuing airman certificates to persons whose qualifications are first determined through rigorous physical, theoretical, and practical examinations. These tests are designed to maintain the highest possible standards in the operation and maintenance of aircraft in this country.

The C. A. A.'s efforts to establish uniformly high standards for airmen in civil aviation begin, logically enough, at the source, with issuance of certificates to approved schools. It is much more likely that safety on the ground and in the air will be achieved if airmen learn the right way through basic instruction rather than through grievous experience. These schools are inspected periodically to determine if the C. A. A. standards are being maintained.

The term "airmen" refers not only to pilots, but to all persons who serve in any capacity as airmen in connection with any civil aircraft used in air commerce—such as mechanics, parachute riggers, control-tower operators. Each must meet the requirements for a certificate authorizing him to do specific work in his field.

Pilot certificates are classified upwards in the following grades: student pilot certificate, private pilot certificate, commercial pilot certificate, airline transport pilot certificate. All but the last are also issued for glider pilots. The requisites in flying time and ability for these various grades become progressively more stringent.

Attached to every airman certificate is an airman rating record. This contains such items as ratings held by the pilot, flight areas to which he is limited, and the type of plane which he is considered competent to pilot. There are two special ratings—instructor rating and instrument rating. Mechanics are rated as to their competency to repair and maintain aircraft, aircraft engines, and parachutes.

Unlike an automobile driver, a pilot can ill afford to let long periods of inaction elapse and still hope to retain his piloting ability. For the pilot's own

Severe Penalties Promised for Flying In Restricted Zones

Pilots of airplanes who fly over restricted areas in the United States, its territories and possessions, during the present national emergency may expect prompt and severe penalties, says Harilee Branch, Chairman of the Civil Aeronautics Board.

Mr. Branch points out that in these days every effort must be made to prevent the possibility of sabotage or other subversive activities. The prohibition against airplanes flying over naval bases, military depots, arsenals, and other strategic national-defense points, he says, must be strictly enforced.

There are a number of such restricted areas in the United States proper, Alaska, the Canal Zone, Hawaii, the islands of Palmyra, Johnston, Midway, Wake, Kingman Reef, Rose, Tutuila, and Guam and the Philippine Islands.

Mr. Branch urged all pilots to acquaint themselves with the restricted areas because they are liable to disciplinary action even though they fly over such areas inadvertently. Lists of restricted areas can be obtained from the Chief, Flight Information Section, Civil Aeronautics Administration, Commerce Department, Washington, D. C.

Mr. Branch says that in some instances restrictions have been placed upon flying over areas which would be dangerous to the pilot himself. Among such are areas where bombing, artillery, antiaircraft, and aerial machine-gun practice and training are conducted. He also called attention to Presidential Order No. 8381, dated March 22, 1940, which makes it "unlawful to make any photograph, sketch, picture, drawing, map, or graphical representation of such vital military and naval installations or equipment without first obtaining permission of the commanding officer of the military or naval post, camp, or station concerned, or higher authority, and promptly submitting the product obtained to such commanding officer or higher authority for censorship or such other action as he may deem necessary." A violation of this order is punishable by a fine of not more than \$1,000 or by imprisonment for not more than one year, or by both.

- Keep 'Em Flying -

safety, therefore, as well as for the safety of the public, the C. A. A. requires that airman certificates be endorsed (renewed) at designated intervals. Each pilot certificate carries a statement of duration. The holder of a student or private certificate is required to secure an endorsement each year, and a commercial or airline transport pilot every six months. In each case, a periodic physical examination is required. For the private and commercial certificates a certain number of solo hours must also have been logged. The same principle is applied to other classifications of airmen.

Private Flying

Airplanes Aid National Farm Program Of U. S. Department of Agriculture

Insect Pest Control, Air Mapping Among Many Uses

Airplanes have become part of the regular equipment of the U. S. Department of Agriculture in carrying out its national farm program.

In addition to the Forest Service, which has made wide use of airplanes, three other important bureaus in the Department use planes in their routine activities—the Bureau of Entomology and Plant Quarantine, the Soil Conservation Service, and the Agricultural Adjustment Administration. Some of the planes are owned by the Department and flown by its own pilots. Others are private machines hired for particular jobs.

A national defense chore of sizable importance is being done by a fleet of hired planes flying over the country to take aerial photographs for the Agricultural Adjustment Administration and the Soil Conservation Service. From the files which these air cameramen have made in recent years, the Department is furnishing the Army photographs with which to make "mosaic" maps of areas surrounding defense "installations."

On call, the Department of Agriculture has air photographs of about 90 percent of the farm lands in continental United States and two-thirds of the entire area in the country—a wealth of material of potential military value. As an easy method of obtaining surveys of farm lands, the Department has been going in for aerial photographs in a big way since 1936. (The first mapping flight was made by a Soil Conservation Service pilot in 1934.) The work is done on contract by privately operated planes, some of which keep on the job fairly continuously by following the seasons about the country. During the year this fleet sometimes totals 60 planes.

From the photos, Department experts get a remarkably accurate and complete survey of the land at an average cost of \$2 per square mile—much less than the cost of rod and chain surface surveys. The pictures also reveal much valuable information regarding soil conservation and land use problems.

The Bureau of Entomology and Plant Quarantine, which pioneered in the field

of the use of the airplane for the control of insect pests, is also employing planes to aid in the control of certain insects such as grasshoppers and Mormon crickets which occur in outbreaks over wide areas.

Development of a bait which could be used against Mormon crickets was followed by improvement in hoppers and devices by which it could be distributed from airplanes. This made it possible to use airplanes to apply measures for control of the Mormon cricket in the high rugged areas where the eggs are laid and from which the bands of crickets migrate to cultivated crops.

Airplanes likewise have been used to apply bait to control grasshoppers with migratory tendencies on idle and abandoned lands. Airplanes have proved effective in locating moving bands of crickets. This Bureau has also used its airplanes and pilots to distribute insecticides to control the white-fringed beetle.

The Bureau of Entomology and Plant Quarantine uses autogiros to locate trees infested with the Dutch elm disease. The autogiros can hover close enough to tree tops to enable the pilots to detect symptoms of the disease.

Autogiros are used in surveys to determine the relative amount of defoliation caused to forested areas by important insects, such as the gypsy moth. Experiments have been carried on to determine the practicability of using the autogiro to distribute insecticides for the control of the gypsy moth.

Summary of Active Certificates

(As of September 1, 1941)

Pilot certificates of competency	86,919
Airline transport certificates of competency	1,518
Student pilot certificates	92,691
Glider pilot certificates of competency	154
Student glider pilot certificates	828
Mechanic certificates of competency	13,063
Parachute rigger certificates of competency	479
Certificated aircraft	22,829
Uncertificated aircraft	442
Certificated gliders	56
Uncertificated gliders	197
Ground instructors certificates of competency	3,943
Air-traffic control tower operators certificates of competency	390
Air carrier dispatchers certificates of competency	426

C. P. T. Prepares Suggestions For Cross-Country Operations

Procedure Valuable To Private Pilots

A number of valuable suggestions concerning operation of aircraft being used in the Cross-Country course of the Civilian Pilot Training Program has been prepared for distribution to flight contractors.

These suggestions and the discussions on them pertain to such things as carburetor ice, mixture control, ground school contracts, flight plans, weather minimums, use of D-F loop, check lists, and radio reports. Since the information is not limited to C. P. T. alone, but is of value to every private pilot who makes cross-country flights, it is presented here.

Special Procedure for the Controlled Cross-Country Course

In recent visits to Civilian Pilot Training Cross-Country centers, many details were discussed and valuable suggestions made. Some of these are included in the following discussions.

Carburetor ice.—Some engines used on Cross-Country flight equipment are sensitive to icing conditions. This may occur even on a hot day especially when the humidity is high. Information should be obtained from the engine manufacturer as to the proper carburetor temperature to be maintained for each particular model engine. Flight contractors should emphasize this point to their instructors. The flight and ground instructors should daily emphasize the importance of this item to the students, so that they will never forget! Neglect of the carburetor temperature can easily cause a serious accident, especially on the approach for a landing.

Mixture control.—When making a flight involving the use of mixture control, instructors and students should be cautioned to be sure that the control is in the rich position before making the final approach.

Weather minimums.—All flights in the Cross-Country Course are to be CONTACT. UNDER NO CONDITIONS SHOULD A FLIGHT BE ATTEMPTED WHERE INSTRUMENT FLIGHT IS INVOLVED. The decision as to whether or not the weather is contact shall be made by consulting the U. S. Weather Bureau sequence report or the local meteorologist in charge. No exception will be made in cases where the instructor has an instrument rating.

Use of D-F loop.—Several contractors have requested information concerning equipment to be used in Lessons 6, 7, and 8 of Stage C, and in Stage D. The Cross-Country contract states that in Lessons 6, 7, and 8 of Stage C, a cabin airplane of at least 65 horsepower or over may be used, provided it is fully

equipped for night flying and is equipped with two-way radio and a loop. This is strictly at the option of the flight contractor. He may use the heavier Cross-Country airplane for these lessons if he so desires. However, only one trainee and the instructor may occupy the airplane during these three lessons regardless of which airplane is used!

Check list.—As an added safety precaution, it is suggested that a typewritten check list be installed on the instrument panel of each Cross-Country airplane. This list should show the important items which must be done prior to each take-off and landing, such as gas-on; radio; mixture; carburetor heat; trailing antenna; flaps; stabilizer; and propeller pitch. This list should be separated to show which items are to apply to take-off and which to landings and should apply to the airplane being used. Several air lines have used this system with excellent results. Too much emphasis cannot be placed on the careful use of each of these items.

Radio reports.—In accordance with General Procedure Bulletin XC-41-S No. 4, the student who is flying the airplane will call each weather station or Airway Traffic Control Office on the route and report his position, altitude, and estimated time of arrival at the next terminal point.

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Special Notice

The Department of Inland Fisheries and Game of the State of Maine has asked that the Civil Aeronautics Administration urge pilots to avoid flights over the Merrymeeting Bay area, near Bath, at altitudes of less than 1,500 feet. The Maine Aeronautics Commission also has made the request to pilots.

The department pointed out that Merrymeeting Bay is one of the most important waterfowl feeding and resting areas in the State, and that low-flying airplanes over the area would cause disturbances which might result in serious damage.

The boundaries of the area are: Latitudes, 44°04' north and 43°53½' south; longitudes, 69°45' east and 69°58' west.

C. P. T. Textbooks Sold Near 300,000 Mark

More than 291,000 copies of Civilian Pilot Training textbooks have been sold by the Superintendent of Documents of the U. S. Government Printing Office. The following figures are as of August 9, 1941:

Name of text	Total sold to date	Price per issue
Flight Instructor's Manual (#5)-----	17,128	\$0.30
Digest of Civil Air Regulations for Pilots (#22)-	34,762	.20
Civil Pilot Training Manual (#23)-----	47,038	.50
Practical Air Navigation (#24)-----	50,000	1.00
Meteorology for Pilots (#25)-----	45,391	.75
Aerodynamics for Pilots (#26)-----	22,400	.30
Pilots' Airplane Manual (#27)-----	24,800	.30
Pilots' Powerplant Manual (#28)-----	29,874	.75
Pilots' Radio Manual (#29)-----	12,179	.25
Ground Instructor's Manual (#30)-----	7,716	.15

NOTE: Figures in parentheses indicate Civil Aeronautics Bulletin number under which text is published.

Airport Projects Approved

In accordance with the provisions of section 303 of the Civil Aeronautics Act, the Administrator of Civil Aeronautics has issued certificates of air navigation facility necessity, authorizing the expenditure of Federal funds in the operation of the following projects:

ALABAMA

Birmingham, Municipal Airport (WPA)----- \$22,436

CALIFORNIA

Paso Robles, Municipal Airport (WPA)----- 254,346

GEORGIA

Atlanta, Municipal Airport (WPA)----- 9,003
Chamblee, Camp Gordon Airport (WPA)----- 249,900

IDAHO

Salmon, Barnard Landing Field, (CCC)----- 1,100

IOWA

Iowa City, Municipal Airport (WPA)----- 97,382

KANSAS

Pittsburg, Municipal Airport (WPA)----- 404,020

MAINE

Bangor, Bangor Airport (WPA)----- 25,000
Eastport, Eastport Airport (WPA)----- 125,000
Rockland, Municipal Airport (WPA)----- 125,000

MINNESOTA

Austin, Municipal Airport (WPA)----- 5,976
Duluth, Duluth Airport (WPA)----- 998,998

NORTH CAROLINA

Chapel Hill, University of North Carolina Airport (WPA)----- 130,439

(See PROJECTS, next page)

C. A. A. to Get Control Of Aerial Traffic At 39 Airports

The Administrator of Civil Aeronautics, Donald H. Connolly, has announced that with the signing of the Army supply bill by President Roosevelt, an appropriation of \$1,000,000 was made available to the C. A. A. for the purpose of placing under its jurisdiction aerial traffic-control activities at 39 airports where flying activities are carried on jointly by military and civilian authorities.

General Connolly said that the control by local authorities has been perfectly satisfactory but that with the very large increase in military and civilian flying activities at these airports as a direct result of the defense program, it seemed more feasible to have the control under a Federal rather than a municipal agency, which is the usual practice.

Installation of equipment and training of personnel will get under way im-

(See TRAFFIC CONTROL, page 243)

Air Navigation Facilities

(September 1, 1941)

Airports

Airports with servicing ¹	986
Airports with paved runways.....	285
Airports with two-way radio.....	390
Lighted airports ²	690
Airports by class:	
Municipal.....	1,027
Commercial.....	813
Private.....	25
Army.....	74
Navy.....	32
Milit. Govt.....	41
C. A. Int. Flds.....	284
Total.....	2,296

Seaplane Bases

Army, Navy, Coast Guard, Marine Corps.....	36
Other seaplane bases and anchorages.....	326
Total.....	362
Seaplane bases having any night lighting equipment.....	20

Radio Aids

Ranges (8 in Alaska, 2 in Hawaii).....	298
Range stations simultaneous, with voice (8 in Alaska, 2 in Hawaii).....	193
Range stations nonsimultaneous, with voice.....	93
Range stations, no voice.....	12
Broadcast stations (10 in Alaska, 2 in Hawaii).....	117
Broadcast stations, simultaneous (8 in Alaska, 2 in Hawaii).....	114
Broadcast stations, nonsimultaneous (2 in Alaska).....	3
Marker stations.....	35
Fan Markers.....	137
Voice (only) stations (7 in Alaska).....	20
Z markers (not at range station).....	3

¹ Servicing: hangar, repairs, and fuel available.

² Lighted airport: boundary and beacon and/or flood lights.

Airways and Airports

Action by States Urged to Eliminate Telephone Power Lines Near Airports

Utility Commissioners Hear Plea by Ryan

A plea for action on the part of the States toward the elimination of public utility telephone, telegraph and power transmission lines constituting dangerous hazards to airport approaches was made by Oswald Ryan, one of the five members of the United States Civil Aeronautics Board, in a speech before the National Association of Railroad and Utility Commissioners meeting at St. Paul. As former General Counsel of the Federal Power Commission, he attended as an honorary member of the Association.

Mr. Ryan said in part:

"Public Utility wires bordering airports constitute one of the great hazards to air transportation in the United States. During 1939 and 1940 there were 105 air accidents due to collision of aircraft with these obstructions to airport approaches. Safety is a relative thing but no airport with such obstructions can be called a safe airport. Certainly no pilot knowingly flies into a telephone or power transmission line. It is true that frequently faulty technique or bad judgment on the part of the pilot contributes to the accident, but the fact remains that the dangerous barriers were there and that if they had not been present there would have been no accident.

"Public safety requires the elimination of these public utility obstructions to the Federal airways and the public utility regulatory commissions of the States have an opportunity to make a valuable contribution in this respect. Those commissions which are empowered by existing laws to issue orders requiring the elimination of unsafe public utility facilities have the necessary authority to deal with this problem. The commission, after notice and hearing, can require the removal of the obstruction and allow the utility to recover the cost through the rates paid by the consumer of its service. That is a reasonable and just charge against the utility consuming public. Where the State utility commission does not possess the necessary authority to accomplish this result, it should be given such authority.

"The Public Utilities Commission of Pennsylvania has already demonstrated the efficacy of this procedure. Whenever the Pennsylvania Public Utilities

Commission, after notice and hearing, finds that a public utility facility is unsafe, the Commission is authorized to require the utility to take appropriate action for public safety—and that means the elimination of the hazard. The company is allowed the cost as a reasonable operating expense in the rates it collects from the consuming public. The Pennsylvania Commission has definitely served the cause of safety in air transportation as well as the safety of those on the ground by appropriate exercise of this power.

"The vital importance of such a policy as I have suggested becomes clear when we take note of the rapidly increasing volume of air traffic in the United States within the past 3 years. Three years ago we had 20,000 civilian pilots flying the federal airways of this country. Today we have 82,000 civilian pilots and by the end of this year we will have 100,000. Three years ago there were 9,732 airplanes flying the airways of the United States; today we have 22,025 flying the airways.

"And remember, these figures do not include military pilots or military aircraft, which are using the federal airways in ever-increasing volume as the national defense program proceeds.

"The removal of these public utility wires from our airport approaches, therefore, is vital not only to the interests of our commerce, the safety of the general public but also to our national defense."

Projects

(Continued from previous page)

PENNSYLVANIA

Williamsport, Williamsport Airport (WPA).....	2,691
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SOUTH CAROLINA

Columbia, Owens Field, (WPA).....	63,477
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TENNESSEE

Jackson, Municipal Airport (WPA).....	58,294
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TEXAS

Eagle Pass, Maverick County Airport (WPA).....	47,640
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WASHINGTON

Yakima, Yakima County Airport (WPA).....	91,103
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Air Transportation

Pan American Acquires Air Ferry Control

To meet requirements of national defense the Civil Aeronautics Board has granted the application of Pan American Airways, Incorporated, for authority to acquire control of Pan American-Africa, Limited, and Pan American-Air Ferries, Incorporated. The public hearing on this matter was held on August 26, 1941.

Air Ferries, Incorporated, was organized for the purpose of ferrying aircraft from the United States to the West Coast of Africa and from the West Coast of Africa to the Middle East. Airways-Africa was engaged in the transportation by air of persons, property, and mail in Africa. It will also carry spare airplane parts to the Middle East and assist in returning ferry personnel.

Pan American's application for authority to operate a commercial air-transportation service from New York to Africa was to be taken up at a later hearing.

Board Dismisses German Zeppelin Application

An application filed by a German company for authority to operate a dirigible air service between Germany and the United States has been dismissed by the Civil Aeronautics Board. This application was filed on October 24, 1938, by Deutsche Zeppelin Reederel, G.m.b.H., of Frankfurt-on-Main, Germany, which desired to operate between Frankfurt-on-Main and Lakehurst, N. J., and/or Opa Locka, Fla. The company planned to make 15 or 20 round trips a year using a 40-passenger dirigible described in the application as a "sister ship of the Hindenburg," the LZ-130, which was then under construction.

The Board dismissed the application for "lack of prosecution."

New Braniff Service Approved

The application of Braniff Airways, Inc., for nonstop service between Dallas, Tex., and Kansas City, Mo., has been approved by the Civil Aeronautics Board. This step will speed up service between the southwestern United States and the Middle West. The two cities are on route 9, which extends from Fort Worth, Tex., to Chicago, Ill.

Air Mail Pick-Up Service Extended

The air mail pick-up service in the United States was extended to three more cities when the Civil Aeronautics Board issued an order amending the certificate of convenience and necessity held by All-American Aviation, Inc., Wilmington, Del., so as to include Lewistown, Carlisle, and Shippensburg, Pa.

All-American had applied for permission to serve, in addition to the above-named cities, Mechanicsburg, Newport, and Newville, Pa., Ripley, W. Va., and Athens, Ohio. The Board denied the application with respect to these cities because existing mail service at these points is such that any improvement resulting from inauguration of air mail pick-up service would not be sufficient to justify the additional costs to the Government.

All-American has been serving 86 cities in Pennsylvania, Ohio, West Virginia, Kentucky, New York, and Delaware on a certificate issued by the Board on July 22, 1940.

- Keep 'Em Flying -

Designation of Medical Examiners

During the month of July 1941, the following named physicians were officially authorized to make physical examinations for the Administration:

ARKANSAS—Dr. Edwin L. Dunaway, Halter Building, Conway.

CALIFORNIA—Dr. Earl M. Tarr, 454 Santa Clara Street, Fillmore, and Dr. Francis C. Hertzog, 305 Professional Bldg., 117 E. 8th St., Long Beach.

COLORADO—Dr. George E. Rice, 702 North Main Street, Pueblo.

IOWA—Dr. Byron M. Merkel, 604 Locust Street, Des Moines.

KANSAS—Dr. Charles C. Hawke, 306 State Bank Building, Winfield.

MASSACHUSETTS—Dr. Max Milman, 14 Maple Street, Springfield.

MINNESOTA—Dr. Richard B. Girvin, 431 La Salle Building, Minneapolis.

NEW MEXICO—Dr. Robert H. Greeley, 113 East Spruce Street, Deming.

SOUTH CAROLINA—Dr. James O. Dunlap, Dunlap Clinic, Rock Hill.

SOUTH DAKOTA—Dr. George E. Whitson, 109 West Center, Madison, and Dr. Frank Lima, Mobridge.

TEXAS—Dr. Wendell W. Sumner, 414 Medical Arts Building, Fort Worth.

WEST VIRGINIA—Dr. Anthony J. Di Cello, Davis Memorial Hospital, Elkins.

SOUTH AMERICA—Dr. Augustin Inostroza, Moneda 1453, Santiago, Chile.

Airline Medical Examiners

Dr. Richard B. Girvin, 431 La Salle Building, Minneapolis, Minn.

Dr. Russell Holt, El Paso National Bank Building, El Paso, Tex.

Statistical Summary



Domestic air-carrier traffic continued its upward climb during July, showing substantial increases over the previous month and large gains over last year, figures compiled by the Civil Aeronautics Administration indicate.

Revenue miles flown by 17 domestic scheduled air lines in July 1941 were 12,154,176, a gain of 20.09 percent over July 1940. In June 1941 revenue miles flown totaled 11,471,787.

In July of this year 373,204 revenue passengers were carried, a 35.29 percent increase over the same month last year. The figure for June of this year was 353,478. Revenue-passenger miles flown in July 1941 were 136,726,075, or 33.54 percent more than in July 1940. In June 1941 the total was 130,760,225.

Express pound-miles flown in July 1941 were 902,457,972, as compared with 838,289,846 the previous month. The July total marked a 58.10-percent increase over the same month last year.

Dr. Leland L. Ball, 748 Stimson Building, Seattle, Wash.

Dr. Augustin Inostroza, Moneda 1453, Santiago, Chile, South America.

Secondary C. P. T. Medical Examiners

Dr. Harold F. Falls, University Hospital, Univ. of Michigan, Ann Arbor, Mich.

Dr. Louis H. Bauer, Professional Building, Hempstead, L. I., N. Y.

Dr. Phocian W. Malone, 404 Petroleum Building, Big Spring, Tex.

The following change of address should be made on the list of medical examiners:

Dr. John H. Ledbetter, 204 Legion Street, Clarksville, Tenn.—(not Clarksburg, Tenn.).

The following physicians are no longer making examinations for the Administration at the cities indicated:

Dr. Hugh C. Brooke, Conway, Ark.
Dr. Joseph E. Whitlow, Fillmore, Calif.
Dr. Francis C. Hertzog, Los Angeles, Calif.
Dr. W. E. Hirst, Pueblo, Colo.
Dr. Harry Burns, Des Moines, Iowa.
Dr. Samuel Segal, Jr., Springfield, Mass.
Dr. Walter S. Atkinson, Watertown, N. Y.
Dr. Robert S. Westaby, Madison, S. Dak.
Dr. Arthur W. Spiry, Mobridge, S. Dak.
Dr. Harold A. Conray, Elkins, W. Va.
Dr. Walter Krumbach, Santiago, Chile, South America.

The following physician is no longer listed as an airline examiner:

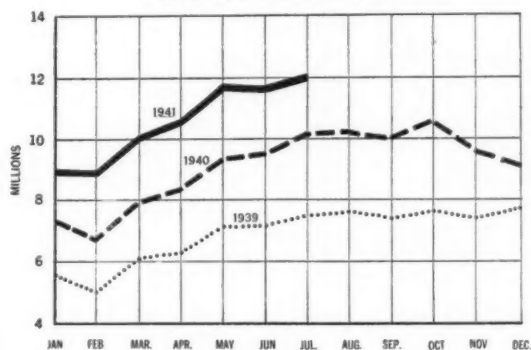
Dr. Walter Krumbach, Santiago, Chile, South America.

The following physicians are no longer listed as secondary C. P. T. examiners:

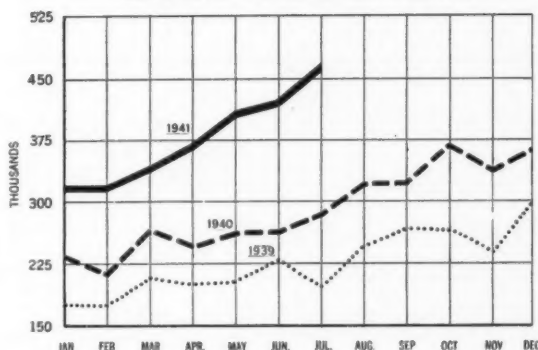
Dr. Harry Burns, Des Moines, Iowa.
Dr. Samuel Segal, Springfield, Mass.
Dr. Fenimore E. Davis, Ann Arbor, Mich.
Dr. Bloyce H. Britton, El Paso, Tex.
Dr. John D. Glickler, San Antonio, Tex.

Domestic Air Carrier Traffic Statistics for 1939, 1940, and the First 7 Months of 1941

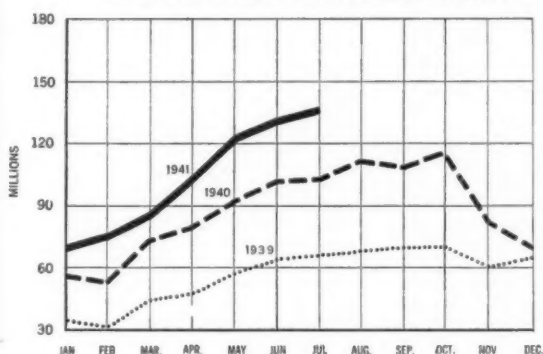
REVENUE MILES FLOWN



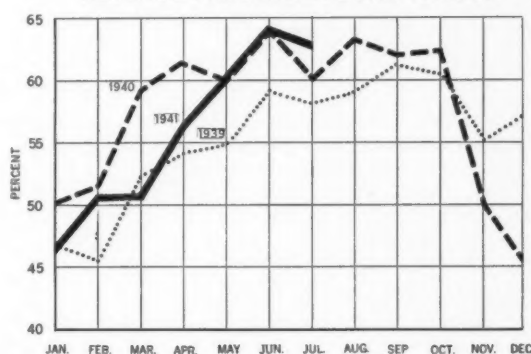
EXPRESS TON-MILES FLOWN



REVENUE PASSENGER-MILES FLOWN



REVENUE PASSENGER LOAD FACTOR



Domestic Air Carrier Traffic Statistics for July 1941

Operator	Revenue miles flown		Revenue passengers carried		Revenue passenger-miles flown		Express pound-miles flown		Revenue passenger load factor (percent)	
	July 1941	Percent change over 1940	July 1941	Percent change over 1940	July 1941	Percent change over 1940	July 1941	Percent change over 1940	July 1941	July 1940
All American Aviation, Inc.	70,336	18.40	113,624	33.74	0	0	238,633	71.28	72.08	67.94
American Airlines, Inc.	2,921,012	12.25	473,421	14.633	38,821,364	31.57	250,865,715	34.74	50.70	40.36
Braniff Airways, Inc.	20,640	-29.80	5,358	-17.24	4,416,421	-17.24	17,338,176	-12.49	77.97	68.74
Catalina Air Transport, Inc.	212,821	17.72	6,252	52.82	160,740	54.90	384,780	47.39	56.45	42.92
Chicago & Southern Air Lines, Inc.	159,584	25.42	2,256	32.24	2,395,161	25.44	9,283,105	42.59	33.55	52.97
Continental Air Lines, Inc.	235,440	13.10	7,869	75.88	644,676	86.71	851,737	165.81	45.45	46.54
Delta Air Corporation	1,658,149	25.93	46,278	51.60	2,178,092	45.53	4,932,340	40.87	52.37	49.77
Eastern Air Lines, Inc.	119,720	17.07	1,501	-6.66	17,020,556	-10.48	92,482,088	7.28	32.02	41.87
Inland Air Lines, Inc.	196,564	39.95	3,733	73.55	383,326	54.59	550,520	134.45	44.89	44.14
Mid-Continent Airlines, Inc.	115,515	32.97	2,190	42.76	954,618	53.56	2,184,596	46.01	36.94	36.51
National Airlines, Inc.	100,324	7.00	4,867	40.58	538,608	92.44	980,735	49.53	50.17	52.90
Northeast Airlines, Inc.	589,240	7.78	17,773	15.41	930,940	23.03	911,186	69.11	62.95	54.44
Northwest Airlines, Inc.	635,454	54.41	36,927	59.05	7,266,222	72.67	37,026,763	74.31	56.92	58.09
Pennsylvania-Central Airlines Corporation	1,859,180	24.27	44,675	38.84	7,097,136	31.88	24,991,930	93.25	62.15	62.07
Transcontinental & Western Air, Inc.	2,483,751	9.96	58,256	20.24	20,920,350	22.01	172,865,692	36.29	75.41	66.87
United Air Lines Transport Corporation	303,025	42.67	7,012	42.46	30,446,756	49.93	255,666,511	42.32	52.22	57.61
Western Air Express Corporation					2,511,103		21,903,445			
Total	12,154,176	20.09	873,204	35.29	136,726,075	33.54	902,457,972	58.10	63.35	59.98

Air Safety

Loose Objects in Cabin Create Hazard In Flying, C.A.B. Bulletin Reminds

Damage to Controls One Of Many Possibilities

The danger of loose objects in a cabin or cockpit interior was cited in a recent safety bulletin issued by the Civil Aeronautics Board.

The bulletin pointed out that a sharp bank or turn necessary to maintain control might displace a loose object resulting in hindrance to the pilot or damage to the controls. It was also explained that loose particles of dust or dirt are likely to get in the pilot's eyes or interfere with his operation of the plane in other ways. Regular cleaning of the cabin or cockpit with a vacuum cleaner was advised in the bulletin, full text of which follows:

Loose Objects in Cabin or Cockpit Interior are Dangerous

In aerobatics or gusty air the pilot who flies a plane containing an accumulation of loose articles such as cushions, earphones, maps, a loose portable radio, a chute, or even ordinary dust and debris like nuts, bolts, pieces of safety wire on the floor or in corners, may find himself in the position of the fellow who tries a hand-stand with his pockets full of change—but probably with more dire results than loss of a few coins.

Occasions arise when maneuvers bordering on aerobatics are necessary to maintain control. A sharp bank or turn may displace a loose object and result in hampering the controls or hindering the pilot. (A fatal air-carrier accident occurred a few years ago because an earphone jammed in the aircrafts control mechanism.) Besides the danger of such objects finding their way into vulnerable spots, possibly a greater danger lies in the contortions which you must make, while flying, in order to recover them.

If an aircraft is not kept in a clean condition, in so far as loose particles and dust is concerned, in bumpy air these particles are likely to get into the pilot's eyes or to interfere with him in other ways.

When an aircraft is released from a repair depot or from a factory, it is considered good practice to go over it

with a vacuum cleaner to get rid of any loose nuts, bolts, pieces of cloth and other small particles which are likely to damage or interfere with the controls or cause other inconvenience. It is good practice to continue this regularly after the aircraft gets into operation.

Check the Interior of the Cockpit or Cabin for Loose Objects Before Every Flight.

[INDIVIDUAL ACCIDENT REPORTS]

Striking Telephone Wires Causes Crash

The tail wheel of an aircraft striking telephone wires caused a crash on July 1, 1940, near Ezel, Ky., resulting in serious injuries to passenger Wilbur Wilson and fatal injuries to passenger Motlev, with minor injuries to pilot Dwight Raup.

Pilot Raup, who held a student certificate, had logged 47 hours. He was flying a Waco 125, powered by a Siemens SH-12, 128-horsepower engine. After refueling on a small rolling hay field during a cross-country tour, Raup agreed to carry two passengers for a local pleasure flight. The take-off was accomplished across the short end of the field, the airplane barely clearing the boundary fence, and the tail wheel struck the top wire of a telephone line located about one hundred yards beyond the edge of the field. This did no damage to the aircraft but resulted in reducing the forward speed. The pilot managed to keep the aircraft under control for another hundred yards or so, after which it stalled and went into a spin, striking the ground at a sharp angle.

Probable cause.—Loss of control of the aircraft after striking a telephone wire shortly after take-off.

Contributing factor.—Poor judgment on the part of the pilot in attempting to take off from a small field with two passengers aboard.

Down-Wind Landing

William L. Harley, a student pilot who had flown 20 solo hours, and his passenger, Robert E. Patterson, were fatally injured in an accident which occurred near Wimer, Oreg., on September 14, 1940. The aircraft, a Piper, Model J-3, was demolished.

The student had flown solo from Grant's Pass to Wimer, where he made

a normal landing in a meadow about 1,250 feet square. Here he took off toward the east for a local pleasure flight with a passenger in the front seat. After flying locally for about 15 minutes, the pilot approached the same field for a landing from the west. His approach was high and he overshot the field. When he was well past the middle of the field, he opened the throttle in an attempt to gain altitude for another approach, but the aircraft struck the tops of some trees about 50 feet high on the edge of the field and fell to the ground.

Subsequent investigation revealed that during the 15-minute flight around the field, which is at an elevation of 1,000 feet above sea level, the wind had changed from the east to the west. Examination of the wreckage disclosed no evidence of failure of the control system or structure or of malfunctioning of the engine. The pilot had been endorsed by his instructor for cross-country solo flying but had been cautioned against landing at the subject field.

Probable cause.—Action of the pilot in attempting a down-wind landing in a small field.

Contributing factor.—Inexperience of the pilot.

Stalled Turn Following Take-off

A stall during a flat turn following take-off caused the crash at Keddie Field, Elko, Nev., on June 9, 1940, in which student pilot Stanley Lyon and his passenger, Carl Lyon, were seriously injured.

Lyon received flight instruction from a pilot operating near Kelso, Wash., from an airport whose elevation is near sea level. The instructor states that he soloed this student upon the completion of eight and one-half hours of dual instruction.

The instructor stated that he refused permission for this student to make a cross-country flight. Despite his limited experience the student pilot was able to rent this aircraft, a Piper J-2, powered by a Continental A-40-4 engine, and take off. Intermediate stops are reported to have been made at Pendleton, Boise, Twin Falls, and Wells, the student arriving at his destination, Elko, on the afternoon of June 8.

On June 9, 1940, the student pilot, accompanied by his brother, Carl, took off for a local flight from Keddie Field, which is situated at an elevation of 5,075 feet above sea level. The take-off was made along a 6,000-foot runway, and, after traversing approximately 5,300 feet of the runway length, the aircraft had attained an altitude of approximately 100 feet. A flat left turn was then started, and the aircraft stalled and fell to the left, striking the ground on its nose, and was demolished.

Probable cause.—Pilot stalled the aircraft during a flat turn following take-off.

Contributing factor.—Inexperience of the pilot.

NOTE.—Pilot Lyon's certificate was suspended for a period of 180 days, dating from August 20, 1940, with the pro-

vision that at the expiration of the suspension period he receive 5 hours dual instruction and a pilot competency endorsement from a certificated instructor, before his certificate privileges would be restored.

Stall Follows Turn at Low Altitude

Ray Hutchinsen, serving as bomber in a simulated aerial bombing contact, was fatally injured when the aircraft in which he was riding crashed following a spin near the Barberton Airport, Barberton, Ohio, on August 11, 1940. The pilot of the airplane, Robert Days, holder of a commercial certificate, was slightly injured. The Swallow airplane involved received major damage.

The pilot was flying the aircraft from the rear seat and was accompanied by the bomber in the front cockpit when they took off toward the west from the Barberton Airport to participate in a bombing contest by dropping lime bombs on a target located on the south side of the airport. Following the take-off the flight was observed to proceed west until approximately 1,000 feet altitude was attained. The plane was then turned toward the south in a left circle of the airport with the engine partly throttled. The airplane was losing altitude slowly as the lime bomb was dropped at the target, and thereafter continued to settle until about over the east side of the airport. Here a climb was started during which the engine was heard to lose r. p. m. The aircraft was then observed to assume level flight before starting into a slightly climbing left turn at an altitude of about 200 feet over the northeast corner of the airport. The airplane stalled after completing about 130 degrees of the turn, and fell off in a left spin. After completing about three-fourths of a turn in the spin, the airplane struck the side of a house and a telephone wire. The wreckage fell onto an automobile beneath.

The engine was damaged by the impact to an extent that made it impossible to determine the cause of loss of power during flight. The condition of the broken propeller, however, indicated that very little power was being applied at the time of impact.

Probable cause.—Airplane stalled during turn at low altitude.

Contributing factor.—Malfunctioning of engine.

Child Runs Into Propeller

Robert Grace, a small boy, was seriously injured in an accident which occurred at the Rockland Airport, New City, N. Y., on September 1, 1940.

The airplane, a Piper, Model J-3, was being operated by its owner, Everett Gates, a limited commercial pilot with a class 1 Land rating.

The child's father was sitting in the passenger seat of the airplane which was parked on the line with the engine run-

ning. The evidence indicates that the child suddenly broke away from his mother, who was standing nearby, and darted toward the nose of the airplane. The pilot immediately cut the switch but the child ran through the arc of the still-revolving blades and received serious head injuries.

Probable cause.—Failure of those present to keep the child clear of the rotating propeller.

Flight Into Adverse Weather

Pilot Theodore Skinner was seriously injured in an accident which occurred near Jordanville, N. Y., on June 24, 1940. His airplane, a Taylorcraft, Model BC, received major damage. The pilot, who held a private certificate with 1 Land rating, had logged a total of about 100 solo flying hours.

The pilot took off from Syracuse, N. Y., about 3:30 p. m. on a cross-county flight to Albany, N. Y. While nearing Herkimer, N. Y., about 4:15 p. m., he encountered unfavorable weather. Better flying conditions appeared to prevail toward the south so he turned in that direction. A low ceiling was encountered, and he states that when he attempted to turn back, the ceiling had closed in. After circling several times at low altitude, the pilot selected a field and was making an approach for a landing when he observed a house immediately ahead. In attempting to avoid striking the house he made a steep left turn toward some tall trees which he did not see in time to avoid. The wings of the aircraft struck two of these trees, situated about 14 feet apart. The impact swerved the airplane to the right as it fell to the ground and skidded down an embankment, coming to rest right side up with the nose crushed against a stump.

Subsequent investigation disclosed that the visibility at the scene of the accident was about 400 feet. Official reports of the Weather Bureau revealed that unfavorable flight conditions prevailed at Utica about the time he flew over that area earlier in the flight. The pilot had no instrument flying experience and the aircraft was not equipped for instrument flying.

Probable cause: Action of pilot continuing flight into increasingly adverse weather conditions.

Contributing factor: Inexperience of the pilot.

Stall Follows Engine Failure

A stall during a downwind turn at low altitude caused the crash near Eutaw, Ala., on August 25, 1940, in which one passenger was fatally injured, one seriously injured, and the pilot slightly injured.

Private pilot Walter Shamblin, accompanied by Owen Wilson and Webster Ryan as passengers, took off toward the south from the Eutaw Municipal Airport on a local flight. The pilot, who had logged 255 hours, circled the airport at a low altitude following the take-off, dived low over the airport and then

placed the airplane in a steep climbing altitude.

The pilot then repeated this series of maneuvers, and the airplane was at an altitude of approximately 75 feet, in this second zoom, when the engine stopped. A downwind turn was attempted in order to return to the airport. However, the airplane stalled during the turn and fell to the ground. The airplane received major damage. Passenger Wilson received fatal injuries, and passenger Ryan sustained serious injuries. The pilot received minor injuries.

Subsequent investigation disclosed that prior to take-off the airplane had been refueled with gasoline brought to the airport by the pilot. The inspection of the wreckage indicated that the aircraft, a Travelair 2000, and the engine, an OX-5 90, had been improperly maintained. Its airworthiness certificate had expired 8 days before the accident.

Probable cause.—Pilot stalled the airplane during a downwind turn at low altitude.

Contributing factors.—1. Engine stoppage. 2. Inexperience of the pilot.

The Civil Aeronautics Board revoked this pilot's certificate on November 8, 1940.

Loss of Control Due to Wing Failure—Student Pilot Carries Passenger

Earl Bryant and his passenger, Othel Kinder, were fatally injured in an accident which occurred near the Earl Bryant Airport, Bernice, Mo., on September 15, 1940.

The two had taken off in the aircraft, a Taylorcraft Model A, on an acrobatic flight shortly before the crash. Witnesses saw the aircraft execute a loop at an altitude of about 500 feet over a point about a quarter of a mile from the airport. As the pilot attempted to effect recovery from the maneuver, the fabric on the left wing near its center was seen to tear off and to trail. The aircraft immediately went into a left spin which continued for about two and one-half turns before recovery was partially effected. The airplane then fell off into a dive at an angle of about 45°, which continued until it struck the ground with the engine developing near maximum power. Fire followed the impact, completely destroying the aircraft.

Bryant had repaired the damage sustained by the aircraft in a former accident a few days previously. He held no certificate for repairing aircraft, and neither were the repairs inspected by a Civil Aeronautics Administration inspector.

Although Bryant had only a student pilot certificate the evidence shows that at the time of the accident he was carrying a passenger for hire. There is no known record of his solo flight time.

Probable cause.—Loss of control of airplane due to wing fabric failure.

Contributing factor.—Improper maintenance and repair of aircraft.

Informational Release Describes Aircraft Power Plant Cooling Tests

Interprets and Explains Pertinent CAR Provisions

To assist aircraft manufacturers in determining the adequacy of cooling systems for power plant installations, and for the information of aircraft owners as to cooling system efficiency, the Engineering Section of the Civil Aeronautics Administration has prepared an informational release on "Cooling Tests." The release, which explains and interprets the pertinent provisions of the regulations, follows:

Cooling Tests

Civil Air Regulations section 0.640 contains the following provisions with reference to aircraft power plant cooling systems:

"CAR 0.640 General. The cooling system shall be of sufficient capacity to maintain engine temperatures within safe operating limits under all conditions of flight during a period at least equal to that established by the fuel capacity of the aircraft, assuming normal engine power and speeds. Compliance with this requirement shall be demonstrated in flight tests in which engine temperature measurements are obtained under critical flight conditions including flight with one or more engines inoperative."

Compliance with the above regulation should be demonstrated by conducting flight tests in the manner and under the conditions described below:

1. General.—The following items should be considered prior to conducting cooling tests:

a. *Instrument calibration.*—All instruments used for conducting cooling tests should be calibrated and all calibration curves submitted with the Type Inspection Report. Calibrations should be made of complete units as installed for the tests and should be witnessed by a C. A. A. inspector immediately prior to or following the official type tests. In lieu of witnessing the calibration, the Inspector may, at his discretion, accept the applicant's calibration providing evidence is produced to his satisfaction that the calibration is satisfactory at the time of the official type tests.

b. *Atmospheric condition.*—No tests should be conducted in air containing visible moisture.

c. *Weight.*—The gross weight at take-off should be maximum permissible take-off weight.

d. *Determination of Hottest Cylinder.*—The cylinder having the hottest spark plug gasket should be considered the hottest. The determination of the hottest spark plug gasket should be witnessed by a C. A. A. inspector. The barrel of the cylinder having the hottest

spark plug gasket should be used in determining the cylinder barrel temperatures. A description of the method of attaching the thermocouple and its location on the cylinder barrel should accompany the report.

e. *Carburetor settings.*—The settings of the carburetor should not be altered unless specifically approved by the engine manufacturer.

f. *Cowling changes.*—If changes to the cowling are desired after certification of the airplane, such changes should be substantiated by submittal of data covering the changes and by flight tests, if considered necessary, to demonstrate adequate cooling.

g. *Propeller changes.*—If changes are desired in propellers after the certification of the airplane, such changes should be substantiated by submittal of data covering the changes and by flight tests, if considered necessary, to demonstrate adequate cooling.

2. *Flight tests.*—The following procedure should be used in conducting cooling tests:

a. *Single-engine aircraft.*—Stabilize cylinder and oil inlet temperatures in flight immediately prior to commencing the test. When temperatures have stabilized return to airport. Take-off at full take-off power (reduce to METO power after one minute), climb at best rate of climb speed,¹ maintain METO power (or full throttle if above critical altitude) until at least 5 minutes after the first occurrence of the maximum cylinder head, cylinder barrel, or oil inlet temperature, whichever occurs last.

b. *Multiengine aircraft.*—Stabilize cylinder and oil inlet temperatures in flight immediately prior to commencing the test. At an altitude approximately 1,000 feet below the critical altitude of the first blower stage of the engines or 1,000 feet below the altitude at which the one-engine inoperative best rate of climb is 50 feet per minute, whichever is lower, stop the coolest running engine by cutting off fuel supply and place dead engine propeller in most favorable pitch position (high or feathered). Climb at one-engine inoperative best rate of climb speed¹ with operating engines at METO power (or full throttle, if above the critical altitude) until at least 5 minutes after the first occurrence of the maximum cylinder head, cylinder barrel, or oil inlet temperature, whichever occurs last.

c. *Long-range flying boats.*—

(1) *Taxiing test.*—Stabilize cylinder, and oil inlet temperatures immediately prior to commencing the tests. First, head down wind, accelerate to a speed

¹To be determined by flight test unless specified on the A. I. R. or Aircraft Specification.

which is below the hump speed by not more than 5 m. p. h. and maintain that speed for at least 10 minutes. Second, head down wind, accelerate to a speed which is above the hump speed by not more than 5 m. p. h. and maintain that speed for at least 10 minutes.

(2) *Climb test.*—Conduct test in accordance with 2 (b).

d. *Data to be recorded.*—During the above tests record the following data at 1- to 2-minute intervals:

- | | |
|--|---|
| (1) Time. | (8) Revolutions per minute. |
| (2) Hottest cylinder head temperature. | (9) Manifold pressure. |
| (3) Hottest cylinder barrel temperature. | (10) Air temperature entering carburetor. |
| (4) Oil inlet temperature. | (11) Mixture setting. |
| (5) Outside air temperature. | (12) Throttle setting. |
| (6) Pressure altitude. | |
| (7) Indicated airspeed. | |

3. *Corrections.*—The observed data should be reduced to a standard which is based on approved correction factors

(See COOLING TESTS, page 241)

New Models Added to Old Type Approvals

(Approval numbers and dates of approval of new models in parentheses)

Aircraft

Fairchild, 24W-41A, 4 place closed land monoplanes. Engine, Warner Super Scarab 185-D. (Type Certificate No. 707, 7-17-41.)

Columbia, CS-65, 2 place closed sea monoplane. Engine, Continental A-65-B. (Type Certificate No. 720, 7-31-41.)

Engines

Aviation Mfg. Corp., Lycoming O-145-A4, 4-cyl. horizontal opposed air cooled, 55 hp., at 2,300 r. p. m. at sea-level pressure altitude. Incorporates an accessory case which provides for Delco-Remy automotive type starter and generator units, and AC automotive fuel pump. (Type Certificate No. 199, 7-29-41.)

Aviation Mfg. Corp., Lycoming O-145-B4, O-145-C4, and GO-145-C4 (Geared), 4-cyl. horizontal opposed air cooled; 65 hp. at 2,550 r. p. m., 75 hp. at 3,100 r. p. m. and 75 hp. at 3,200 r. p. m., respectively, at sea-level pressure altitude. Incorporates same equipment as for O-145-A4 above. (Type Certificate No. 210, 7-29-41.)

Propellers

Sensenich, 90H, 90HA, and 90HB, wood, 7 ft. 6 in. diameter, 7 ft. 6 in. to 6 ft. 8 in. pitch, 160 hp., 1,850 r. p. m. (Approved Type Certificate No. 556, 8-6-41.)

Appliances

Federal, skis, models SC-3, SC-4B, SC-5, and SC-6. Approved static load per ski, 1,200 lbs., 1,425 lbs., 1,800 lbs., and 2,300 lbs., respectively. (Type Certificate No. 82, 7-22-41.)

Goodyear, low-pressure wheels, model 17-00-16-HBM, 17-00-16, magnesium cast. Approved static load per wheel 17,000 lbs. (Type Certificate No. 37, 7-30-41.)

Hayes, low-pressure wheels, model 451A 5.00-4, aluminum cast. Approved static load per wheel 1,200 lbs. (Type Certificate No. 10, 8-2-41.)

Oil Industry Plans To Double Output Of Aviation Gas

The oil industry is taking the initiative in an effort to double its refining capacity for 100-octane aviation gasoline as quickly as possible.

Steps to be taken in accomplishing this result were discussed at a recent conference between chairmen of industry advisory committees representing the refining and other branches of the petroleum industry and officials in the Office of Petroleum Coordinator for National Defense.

Certain preliminary surveys already are well under way and other studies are being made to determine the probable initial requirements in cracking and other essential equipment.

Meanwhile, action to preserve certain vital blending agents for use only in the production of 100-octane aviation gasoline for the National's flying forces was taken by the O. P. C. N. D.

Acting Coordinator Ralph K. Davies issued a formal recommendation to the oil industry that it cease immediately the use of blending agents of a petroleum origin for other than the production of 100-octane aviation gasoline or such other aviation gasolines as the Coordinator's Office may recommend later.

The essential agents to which the ban will apply are the Iso-octanes, including alkylates, hot acid octanes and hydrocodimers, Iso-pentanes and Neo-hexanes. Certain of these agents now are being diverted for use in motor fuel and in less than 100-octane aviation gasoline.

"This office has called for a doubling of 100-octane refining capacity to provide an additional margin of safety, but it takes time to bring expanded or new plants into production," Mr. Davies said in a statement.

"Pending the day this objective is achieved, one positive immediate step that can be taken in the direction of our goal is to withhold these vitally necessary agents from uses other than that of producing high test aviation gasoline. Accordingly, there should be no further diversion of these components either to the production of motor fuel or to aviation gasoline of less than 100-octane."

In regard to the contemplated expansion of the oil industry's refining capacity, Defense Petroleum Coordinator Harold L. Ickes had previously stated:

"This country cannot go on building and operating planes to the number of thousands and at the same time supply the British, Russians and, I hope, eventually the Chinese, without increasing refining capacity considerably. The availability of adequate supplies of oil and gasoline will determine the conflict now raging abroad, so that the matter of multiplying capacity is one of immediate necessity."

"The industry, I am confident, is quite capable of doubling its 100-octane refin-

(See AVIATION GAS, page 243)

Manufacturing and Production

Vibration Testing Equipment Placed In "Mobile Laboratory" for Trials

Project Designed to Aid Designers, Manufacturers

A significant step in the advance of flutter and vibration studies, with particular emphasis on their practical application, will be taken soon when the Technical Development Division of the Civil Aeronautics Administration subjects equipment it has developed to ground and service flight tests at the C. A. A.'s experimental station at Indianapolis.

Part of the instrumentation developed during the past 2 years for the purpose of determining the vibration and flutter characteristics of aircraft components is now being installed in a truck, which will serve as a mobile vibration testing laboratory. It is planned to conduct these tests on the C. A. A.'s "flying laboratory," a transport-type plane, and valuable information concerning both the airplane and the equipment is expected to result.

Although flutter and vibration studies are of relatively recent origin, their importance has been greatly stressed with the advent of larger and faster aircraft. It is generally conceded that because of this recent recognition and because of the complexity inherent in the whole question of vibration and flutter, aircraft designers do not possess a satisfactory knowledge regarding it. One of the obstacles in the way of obtaining such knowledge is the need of developing and applying to a large number of aircraft designs apparatus that will effectively measure their elastic characteristics, which the analyst needs in his studies.

The present program is a continuation of one undertaken in 1940 to provide for the development of such apparatus. As soon as the apparatus has been service tested to the satisfaction of C. A. A. engineers, it will be made available to the industry for use in collecting the data needed to place the analyst's knowledge of design on a factually supported basis.

The program has now reached the phase in which various elements previously developed will be coordinated and such additional developments as may prove necessary will be undertaken. Actual use of the coordinated instrumentation is expected to lead to the development of additional equipment or equipment already developed. In any to indicate the necessity for modifying

case, the continued development of this type of equipment will be required to keep pace with the ever widening field of application.

The prime objective of this work is to provide manufacturers with apparatus which will enable them to free their aircraft structures from resonance conditions so that the structures cannot be excited dangerously by engine unbalances and failures or by aerodynamic forces. To this end the Technical Development Division is closely correlating its vibration and flutter work with other agencies concerned with the same problem.

C. P. T. Acts to Prevent Carburetor Ice Danger

Beginning with the 1941 fall session, requirements for flight equipment in the cross-country course of the Civilian Pilot Training Program will include adequate appliances for preventing formation of ice in engine carburetors.

An airplane, to be eligible, must meet the requirements outlined in Certificate and Inspection Division Release No. 21, dated August 1, 1940, which is an interpretation of section 04.6291 of the Civil Air Regulations. Copies of the release may be obtained from the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C.

Most airplanes now being used in the cross-country course are equipped with carburetor heaters, and therefore it is not likely that very many changes will have to be made. Flight contractors, however, will be required to show proof of the amount of heat available.

— Keep 'Em Flying —

More Steel for Aircraft

An expansion program designed to triple the supply of fabricated alloy steel for aircraft manufacture before the end of 1942 has been undertaken by the Iron and Steel Branch of the Office of Production Management. The increased supply is to be obtained through the expansion of the steel industry's electric furnace, heat treating, and other finishing capacity, and through allocation of orders so as to obtain maximum output from present facilities.

Safety Measures in Hurricane Season Explained to Aircraft Operators

Weather Bureau Helps With Warning Service

The following is a safety bulletin issued by the Civil Aeronautics Board and written by B. C. Haynes, air-safety specialist in meteorology.

During the months from June to November, aircraft operators along the Gulf coast, in Florida, and along the Eastern Seaboard should be on the alert for hurricanes and should be ready to take quick steps to prevent the loss of life or property which may be caused by these violent storms.

There is no regularity in the number of tropical storms which might occur in any given year, and in the period 1887 to 1937 the number has varied from one in 1890 to 21 in 1933. The peak of the season is in August, September, and October.

The United States Weather Bureau now maintains an efficient Hurricane Warning Service. This Service has three main functions: The collection of reports from an extensive network of land stations and ships at sea, the issue of forecasts and warnings and the distribution of this information to the public by radio, telephone, telegraph, and newspaper.

There are five forecast centers, located in Boston, Mass.; Washington, D. C.; New Orleans, La.; Jacksonville, Fla.; and San Juan, P. R.

The warnings issued by these forecast centers give the position of the storm center, its intensity, and the direction and rate of movement. When the hurricane is approaching the coast line then the time and place of arrival is forecast together with a statement of the effects to be experienced, such as the onset of high tides or destructive winds with their direction and probable duration.

In most cases the pilot or operator will be concerned with the protection of his aircraft while on the ground, although the warnings may enable him to move the aircraft to another airport which will not be affected by the storm. This is usually the safest procedure to follow.

There are several features of a hurricane that should be considered in determining the best method of protection.

The winds in the hurricane rotate in a counterclockwise direction, and the velocity often reaches 125 to 150 miles per hour. Very strong gusts accompany these high winds, and the gust velocity may be 50 percent higher than the average velocity. There is a central "eye" which has relatively calm winds. The diameter of the "eye" averages about 14 miles. If the center of the hurricane passes the station, the wind will gradually build up to a maximum velocity, then there will be a sudden decrease of wind and a partial clearing lasting

from 15 minutes to 1 hour as the "eye" passes, then a sudden and violent wind in the opposite direction to the first strong wind which will last for perhaps another hour.

In small hurricanes the diameter of the area of destructive winds may not exceed 25 miles, while in some of the greatest the diameter may be as much as 500 miles.

Along the coast line the tides which accompany the hurricane as it approaches the continent may range from 10 to 16 feet above normal. The inundations by high tide and flood rains have caused greater loss of life and property than the high winds of the hurricane. Rainfall amounts in excess of 30 inches in a 24-hour period are not uncommon. The rainfall may begin 12 to 18 hours before the arrival of the storm center and last for 18 hours after the center has passed. The greatest rainfall intensities occur near the center.

The safeguarding of aircraft and equipment during a hurricane then involves the following:

1. Protection from high winds (strong, well-built hangars. It is considered good practice to leave a crack in the hangar doors to allow internal and external pressure to equalize more readily).

2. Protection from floods.

It is not advisable to fly in the vicinity of a hurricane because of:

1. Severe turbulence.
2. Heavy rain and reduction of visibility.
3. Strong winds.
4. Extreme gustiness near the ground during landing.

In flying around a hurricane keep at least 250 miles away from the center and if possible fly to the right of the storm to take advantage of tail winds.

Fall Training

(Continued from page 229)

college phase. There will be no noncollege elementary phase during the fall, but it is planned to train 850 students in this course starting January 2, 1942.

Insurance Rates Again Lowered

Administrator Donald H. Connolly has announced that the rates to C. P. T. trainees for insurance have again been voluntarily lowered. This is the sixth time since the start of the program in 1939 that the insurance companies have voluntarily lowered their premium charges.

Rates for the \$3,000 life and \$1,000 hospitalization and accident insurance for trainees in the elementary course have been lowered from \$7.20 to \$7.

Rates for students in the secondary course have come down from \$9.60 to \$9 for the same benefits.

Student pilots, before the C. A. A. program, paid \$35 for \$3,000 life insurance during their training period. When the program was started, the insurance companies set the rate at \$20. After the first experimental group had been put through the C. A. A. sponsored schools, the insurance companies made successive reductions first to \$14, then to \$10, and then to \$9, and then to \$7.20 for elementary students. These rates cover the student against accidents in ground transportation to and from the flying field.

C. A. A. trainees have piled up a safety record never before equalled, flying more than 6,200,000 miles per fatality in the "controlled" flight instruction courses.

Report Discusses Problems of Light Airplane Engines

To aid aircraft and aircraft engine designers, constructors, and inspectors in placing special emphasis in their work leading to an improvement in the safety of flying, the Civil Aeronautics Administration has prepared a report on "Some Present-Day Problems in Light Airplane Engines."

Written by Ralph S. White, Chief of the Powerplant Unit, the report contains an outline of some current problems concerning the operational characteristics of light airplane engines. Particular reference is given to the four-cylinder horizontal opposed aircooled engines, which comprise over 90 percent of all aircraft engines under 100 horsepower manufactured since 1935.

Statistics of private flying operations from 1936-40 are shown, and charts representing the results of the analyses and studies made by the C. A. A. as to the causes of all powerplant failures reported on aircraft equipped with this type of light airplane engine are given.

The method of investigating, tabulating, analyzing, and instigating corrective action of service troubles is described, while the detailed handling of a persistently chronic and aggravating problem—idling difficulties in flight—is discussed extensively.

The importance of the educational approach that must be applied in the handling of the manifold problems involved as they pertain to the pilot, the airplane and airplane engine manufacturers, and the personnel of the C. A. A. also is discussed.

Additional service problems concerning replacement parts, icing, automobile fuel, overhaul, vibration, noise, starting, detonation, etc., are treated to the extent warranted by the seriousness of the problem.

Interested persons may obtain copies of the report from the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C.

Cooling Tests

(Continued from page 238)

and maximum expected outside air temperatures. The maximum expected outside air temperatures should correspond to the respective pressure altitudes at which the maximum cylinder head, cylinder barrel, and oil-inlet temperatures first occur. The following corrections and correction method should be used:

a. *Cooling air correction factors.*—The approved correction factors for cooling air are as follows:

- (1) Cylinder head..... 1.0
- (2) Cylinder barrel..... .7
- (3) Oil inlet to engine..... .8

b. *Maximum expected outside air temperature.*—The C. A. A. has established what is considered to be the maximum outside air temperature which may be expected as follows:

- (1) *For landplanes, amphibians, or seaplanes.*—
 - (a) 5,000 feet or below, 110° F.
 - (b) Above 5,000 feet, 110° F. minus 6° F. for each 1,000 feet above 5,000 feet.
- (2) *For long range flying boats.*—
 - (a) 5,000 feet or below, 100° F.
 - (b) Above 5,000 feet, 100° F. minus 6° F. for each 1,000 feet above 5,000 feet.

c. *Average outside air temperature.*—For correction purposes the average of the outside air temperatures observed during the 5 minutes following the first occurrence of the respective maximum temperatures of the hottest cylinder head, the hottest cylinder barrel, and the oil inlet to the engine should be used.

d. *Sample corrections.*—Sample problems and examples of applying the corrections are given below:

- (1) 5,000 feet or below.
 - (a) *Cylinder head temperature correction.*—Corrected temperature=observed maximum cylinder head temperature plus 110° F. (or 100° F.) minus average outside air temperature.

Example.—Observed maximum cylinder head temperature 400° F. Observed altitude 3,000 feet. Average outside air temperature 40° F.

Corrected temperature = 400° + 110° - 40° = 470°.

- (b) *Cylinder barrel temperature correction.*—Corrected temperature=observed maximum cylinder barrel temperature plus 0.7 times the quantity 110° F. (or 100° F.) minus average outside air temperature.

Example.—Observed maximum cylinder barrel temperature 200° F. Observed altitude 3,500 feet. Average outside air temperature 42° F.

Corr. Temp. = 200° + .7 × (100° - 42°) = 247.6° F.

- (c) *Oil inlet temperature correction.*—Corrected temperature=Observed maximum oil inlet temperature plus 0.8 times the quantity 110° F. (or 100° F.) minus average outside air temperature.

Example.—Observed maximum oil inlet temperature 140° F. Observed altitude 4,000 feet. Average outside air temperature 44° F.

Corr. Temp. = 140° F. + 0.8 × (100° - 44°) = 192.8° F.

- (2) Above 5,000 feet.

(a) *Cylinder head temperature correction.*—Corrected temperature=Observed maximum cylinder head temperature plus 110° F. (or 100° F.) minus 6 times the quotient (observed altitude minus 5,000, divided by 1,000) minus average outside air temperature.

Example.—Observed maximum cylinder head temperature 400° F. Observed altitude 12,000 feet. Average outside temperature 8° F.

Corr. Temp. = 400° + (110° - 6° × $\frac{12,000 - 5,000}{1,000}$ - 8°) = 460° F.

(b) *Cylinder barrel temperature correction.*—Corrected temperature=Observed maximum cylinder barrel temperature plus 0.7 times the quantity 110° F. (or 100° F.) minus 6 times the quotient (observed altitude minus 5,000, divided by 1,000) minus average outside air temperature.

Example.—Observed maximum barrel temperature 200° F. Observed altitude 12,500 feet. Average outside air temperature 7° F.

Corr. Temp. = 200° + .7 (110° - 6° × $\frac{12,500 - 5,000}{1,000}$ - 7°) = 240.6° F.

(c) *Oil inlet temperature correction.*—Corrected temperature = Observed maximum oil inlet temperature plus .8 times the quantity 110° F. (or 100° F.) minus 6 times the quotient (observed altitude minus 5,000, divided by 1,000) minus average outside air temperature.

Example.—Observed maximum oil inlet temperature 140° F. Observed altitude 13,000 feet. Average outside air temperature 5° F.

Corr. Temp. = 140° + 0.8 (110° - 6° × $\frac{13,000 - 5,000}{1,000}$ - 5°) = 185.6° F.

4. *Maximum permissible operating temperatures.*—The maximum engine temperature limits are determined as follows:

a. *Manufacturers limits.*—The maximum permissible operating temperatures are substantiated by the engine manufacturer and are specified on the engine specifications issued by the C. A. A. Normally, the temperature limits will be specified on the Aircraft Inspection Request.

b. *Arbitrary limits.*—For all obsolete engines or engines no longer in production which previously have been certificated and for which the engine manufacturer did not request maximum permissible temperature limits, the following temperature limits are still applicable:

- (1) Cylinder head..... 550° F.
- (2) Cylinder barrel..... 300° F.
- (3) Oil inlet to engine..... 200° F.

Instructions Issued For Inspection of C. P. T. Plane Heaters

The importance of a careful inspection to determine the safety of cabin heaters on Civilian Pilot Training airplanes is stressed in a maintenance bulletin issued by the Standards Division of the C. P. T., Civil Aeronautics Administration.

The bulletin instructs all flight contractors to make the inspection by removing the cabin heater shroud and examining the manifold tubing. If no cracks are found, the bulletin states, the tubing should be tapped lightly for any indication that the wall thickness has been decreased because of burning. These inspections must continue at intervals recommended by the manufacturer, or if no recommendation has been made, the intervals between inspections shall not exceed 50 hours of flying time.

If the shroud is wrapped with a non-inflammable material to produce additional heat, the wrapping must not extend over the exhaust manifold beyond the shroud, the bulletin warns. The manifold is designed to be cooled by a constant flow of air and when the manifold tubing is wrapped it will burn out very rapidly. Care also is urged to make sure that the operating valve allows a clear passage of air through the shroud when the heater is turned off as well as when it is turned on, since the manifold tube inside the shroud is cooled by the air passing through the shroud.

Symptoms that will indicate the presence of carbon monoxide gas have been outlined by the C. A. A.'s Aviation Medical Division as follows (in the order that they generally occur): tightness across the forehead, possible headache (slight), blush of the blood vessels of the face, a real headache, throbbing in the temples, severe headaches, weakness, dizziness, nausea and vomit, collapse.

Students should be told that when any symptoms are felt which lead them to believe that carbon monoxide gas is present in the cabin or cockpit, they should close the heater, open the windows and return to the field as soon as possible.

The bulletin (C. P. T. Maintenance Bulletin, Powerplant No. 5) may be obtained from the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C.

Normally the temperature limits will be specified on the Aircraft Inspection Request issued by the Administrator.

5. *Approval.*—The cooling characteristics of a power plant installation will be considered satisfactory when the corrected calibrated temperatures do not exceed the maximum permissible operating temperatures as indicated in Part 4 (a) or 4 (b), whichever applies.

CIVIL AERONAUTICS BOARD OFFICIAL ACTIONS

Abstracts of Opinions, Orders, and Regulations

FOR THE PERIOD AUGUST 15-31, 1941

ORDERS

ORDER No. 1193 August 19, 1941

Revoked commercial pilot certificate No. 26943, held by Harold C. Phillips, Dallas, Tex., for piloting an aircraft over a congested area at an altitude of less than 1,000 feet and other violations of the Civil Air Regulations.

ORDER No. 1194 August 19, 1941

Suspended for 90 days commercial pilot certificate No. 45793, held by Ashley Raymond Rosson, Jr., Washington, D. C., for piloting an aircraft within an airspace reservation in the city of Washington, D. C., in violation of the Civil Air Regulations.

ORDER No. 1195 August 21, 1941

Affirmed the denial by the Administrator of the application of Paul H. Berrien for an air-traffic control-tower operator certificate. (Opinion and order—Docket No. SR-64).

ORDER No. 1196 August 21, 1941

Consolidated into one proceeding for the purpose of hearing the applications of Pan American Airways, Inc., with respect to the acquisition of control of Pan American Airways-Africa, Ltd., and Pan American Air Ferries, Inc.

ORDER No. 1197 August 22, 1941

Granted Pan American-Grace Airways, Inc., permission to inaugurate nonstop service between (1) Cali, Colombia, and Guayaquil, Ecuador, and (2) Talara and Lima, Peru, on August 26.

ORDER No. 1198 August 26, 1941

Suspended for a period of 90 days student pilot certificate No. S-5232, held by Delmer M. Smith, Burlington, Iowa, for permitting an aircraft, of which he was one of the registered coowners, to be flown by a person who was not possessed of an appropriate currently effective pilot certificate for the operation involved, in violation of the Civil Air Regulations.

ORDER No. 1199 August 26, 1941

Suspended for a period of 6 months student pilot certificate No. S-158935, held by Cabell Young, Jr., Charlotte, N. C., for piloting an aircraft outside the area of the operating base of his instructor without proper certification

of his student pilot certificate, and other violations of the Civil Air Regulations.

ORDER No. 1200 August 26, 1941

Revoked student pilot certificate No. S-29288, held by Robert W. Jeffrey, Princeton, N. J., for piloting an aircraft acrobatically on a civil airway over a congested area at an altitude of less than 1,000 feet in violation of the Civil Air Regulations.

ORDER No. 1201 August 26, 1941

Suspended for a period of 6 months student pilot certificate No. 208335, held by Robert E. Davis, Anoka, Minn., for piloting an aircraft at an altitude of approximately 300 feet above the water in violation of the Civil Air Regulations.

ORDER No. 1202 August 26, 1941

Suspended for a period of 60 days private pilot certificate No. 79341-41, held by Emmet L. Healey, Ardon, Iowa, for piloting an aircraft carrying a passenger while the dual rudder controls were fully operative in violation of the Civil Air Regulations.

ORDER No. 1203 August 26, 1941

Revoked commercial pilot certificate No. 18857 held by Joe E. Allen, Greensboro, N. C., for piloting an aircraft on a civil airway at an altitude of approximately 100 feet above the ground, and other violations of the Civil Air Regulations.

ORDER No. 1204 August 26, 1941

Revoked private pilot certificate No. 55112-41, held by Wm. J. Brennan, Kallispell, Mont., for piloting an aircraft after it had been damaged in an accident and before it had been rerated as airworthy, and other violations of the Civil Air Regulations.

ORDER No. 1205 August 26, 1941

Revoked student pilot certificate No. S-320415, held by Leonard A. Bramson, Elk Point, S. Dak., for piloting an aircraft outside the area of the operating base of his instructor without proper certification of his student pilot certificate, and other violations of the Civil Air Regulations.

ORDER No. 1206 August 26, 1941

Overruled motion filed by the Administrator of Civil Aeronautics to amend the complaint filed alleging certain vio-

lations were committed by Henry H. Cheek of Orlando, Fla.

ORDER No. 1207 August 26, 1941

Revoked private pilot certificate No. 26914-40, held by Henry H. Cheek, Orlando, Fla., for piloting an aircraft on a civil airway while under the influence of intoxicating liquor and other violations of the Civil Air Regulations.

ORDER No. 1208 August 26, 1941

Approved application of Eastern Air Lines, Inc., for authority to inaugurate nonstop service between Chicago, Ill., and Nashville, Tenn., on route No. 10. (Opinion and order—Docket No. 605)

ORDER No. 1209 August 28, 1941

Approved acquisition by Pan American Airways, Inc., of control of Pan American Airways-Africa, Ltd., and Pan American Air Ferries, Inc. (Opinion and order—Docket No. 640)

ORDER No. 1210 August 27, 1941

Denied the petition of the city of St. Paul, Minn., for permission to intervene in the application of Northwest Airlines, Inc. for a certificate of public convenience and necessity.

ORDER No. 1211 August 29, 1941

Revoked student pilot certificate No. S-29568, held by Darrell E. Brown, Los Angeles, Calif., for piloting an aircraft carrying a passenger other than a certificated instructor and other violations of the Civil Air Regulations.

ORDER No. 1212 August 29, 1941

Revoked student pilot certificate No. 29569, held by Kenneth E. Brown, Los Angeles, Calif., for piloting an aircraft carrying a passenger other than a certificated instructor and other violations of the Civil Air Regulations.

ORDER No. 1213 August 29, 1941

Revoked private pilot certificate No. 82575-41 held by George B. Dominick, West Columbia, S. C., for starting the engine of an aircraft without a competent operator attending the engine controls and without having placed blocks in front of the wheels and other violations of the Civil Air Regulations.

ORDER No. 1214 August 29, 1941

Revoked student pilot certificate No. 162553, held by James Patrick Hogg, Baltimore, Md., for starting the engine

of an aircraft without a competent operator attending the engine controls and without having placed blocks in front of the wheels and other violations of the Civil Air Regulations.

ORDER No. 1215 August 29, 1941

Granted Inland Air Lines, Inc., permission to inaugurate nonstop service between Pierre, S. Dak., and Rapid City, S. Dak., intermediate points on Route No. 35, on September 1.

ORDER No. 1216 August 29, 1941

Granted United Air Lines Transport Corporation permission to inaugurate nonstop service between (1) Omaha and North Platte, Nebr., and (2) North Platte, Nebr., and Cheyenne, Wyo., intermediate points on Route No. 1, on September 1.

REGULATIONS

REGULATION No. 181 August 19, 1941

Adopted Amendment No. 128 of the CAR, Ground Instructor Rating Examination, amending section 51.27. Full text follows:

Effective August 19, 1941, section 51.27 of the Civil Air Regulations is amended to read as follows:

"51.27 Recamination.—An applicant for a ground instructor rating who has failed to pass any prescribed examination or test therefor shall not apply for reexamination for the same rating until the expiration of 30 days from the date of such failure."

REGULATION No. 182 August 21, 1941

Adopted special regulation regarding operation by air carriers of multi-engine land aircraft over the lower bay of New York Harbor. Text of the regulation follows:

"Notwithstanding the provisions of sections 61.3220 and 61.3230, scheduled air carriers in air transportation may operate multi-engine land aircraft on a direct route between Keyport, N. J., and New York Municipal Airport, La Guardia Field, N. Y., over the Lower Bay of New York Harbor at a distance beyond gliding distance from shore without the aid of power when such operation is authorized by the Administrator in the interest of safety."

REGULATION No. 183 August 26, 1941

Adopted special regulation permitting use of an experimental aircraft in a special student training program to be conducted in cooperation with the military services. Text of regulation follows:

"Notwithstanding any provisions of the Civil Air Regulations, for a period of 60 days from August 26, 1941, any student who is a member of the military forces of the United States, taking instruction on aircraft of the type known as the Skyfarer, manufactured by the General Aircraft Corporation, having two controls, tricycle landing gear and type certificated by the Administrator as characteristically incapable of spinning, may fly solo from an airport under the supervision of the United States Army and make cross-country solo flights within a 50-mile radius of such airport whenever in the opinion of his instructor he is qualified to do so and the instructor has made a notation to that effect on the student pilot certificate: *Provided*, That no student shall solo a conventional three-control airplane until he has obtained at least four additional hours of dual instruction on conventional three-control airplanes, including the recovery from spins, and the instructor shall make a notation to that effect on his student pilot certificate."

Notice

The CIVIL AERONAUTICS JOURNAL carries in this section an abstract of all orders, economic regulations, and rules, and a syllabus of all opinions issued by the Civil Aeronautics Board during the half month ending 2 weeks prior to the date of publication.

ECONOMIC OPINIONS

All opinions of the Board in economic proceedings are printed individually. They may be obtained on a subscription basis. These are "advance sheets" of the material which later will make up bound volumes of CIVIL AERONAUTICS BOARD REPORTS.

The subscription price for each volume of advance sheets of opinions is \$1. Remittance should be made to the Superintendent of Documents, Government Printing Office, Washington, D. C.

Such subscriptions are governed by the quantity of pages rather than by specific periods of time. Current subscriptions include all opinions issued since June 30, 1940, and will continue until the consecutive pagination reaches approximately 800.

NOTE.—Advance sheets of economic opinions also may be purchased individually. As each opinion becomes available in printed forms, the title of the case, docket number, order number, date, and price will be listed here. All orders must be sent to the Superintendent of Documents.

Opinions in cases of suspension, revocation, or denial of airman certificates are available in mimeograph form only. Verbatim copies of these may be obtained by addressing a request for each individual order and opinion desired to the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C.

Traffic Control

(Continued from page 233)

mediately and it is expected that the transfer will become effective January 1, 1942. Following is a list of the control points:

Albuquerque, N. Mex.	Manchester, N. H.
Atlanta, Ga.	Meridian, Miss.
Augusta, Ga.	Midlands, Tex.
Bangor, Maine	Nashville, Tenn.
Baton Rouge, La.	New Orleans, La.
Boise, Idaho	Oklahoma City, Okla.
Charlotte, N. C.	Orlando, Fla.
Detroit (Wayne Co.), Mich.	Pendleton, Oreg.
Everett, Wash.	Presque Isle, Maine
Fort Wayne, Ind.	Portland, Oreg.
Fresno, Calif.	Salinas, Calif.
Houlton, Maine	Savannah, Ga.
Jackson, Miss.	Salt Lake City, Utah
Jacksonville, Fla.	Tallahassee, Fla.
Los Angeles (Mines Field, Calif.)	Tucson City, Ariz.
Lake Charles, La.	Tulsa, Okla.
Las Vegas, Nev.	Wichita Falls, Tex.
Little Rock, Ark.	West Palm Beach, Fla.
Louisville, Ky.	Floyd Bennett Field, Brooklyn, N. Y.
Long Beach, Calif.	

Aeronautical Charts

During August the following new editions of aeronautical charts were issued by the United States Coast and Geodetic Survey. Pilots are warned that the previous editions of the same charts are canceled and now are obsolete.

Regional and direction-finding (DF) charts are sold for 40 cents each, while sectional charts are 25 cents each. On orders grossing \$10 or more, a 33½ percent discount is allowed. Copies of these charts may be obtained from the Coast and Geodetic Survey, Washington, D. C., and from recognized dealers at major cities and airports.

New Editions of Sectional Aeronautical Charts

Corpus Christi—June 1941. Size, 20 by 46 inches. Located in latitude 26°-28° N., longitude 96°30'-102° W., an area of about 47,000 square miles. Accumulation of changes since the last edition.

Dallas—August 1941. Size, 20 by 46 inches. Located in latitude 32°-34° N., longitude 96°-102° W., an area of about 55,000 square miles. Dallas radio range realigned and danger zones added.

Lake Huron—August 1941. Size, 19 by 39 inches. Located in latitude 44°-46° N., longitude 78°-84° W., an area of about 47,000 square miles. Canadian airways added together with an accumulation of changes since the last edition.

Lake of the Woods—August 1941. Size, 20 by 37 inches. Located in latitude 48°-50° N., longitude 90°-96° W., an area of about 45,000 square miles. Civil airways in Canada added.

Mount Whitney—August 1941. Size, 20 by 44 inches. Located in latitude 36°-38° N., longitude 114°-120° W., an area of about 53,000 square miles. Accumulation of changes since last edition.

Norfolk—July 1941. Size, 23 by 37 inches. Located in latitude 34°-38° N., longitude 75°-78° W., an area of about 34,000 square miles. Langley radio range realigned and danger zones added.

Oklahoma City—August 1941. Size, 20 by 45 inches. Located in latitude 34°-36° N., longitude 96°-102° W., an area of about 56,000 square miles. Civil airways revised and accumulation of changes since the last edition included.

Spokane—August 1941. Size, 20 by 38 inches. Located in latitude 46°-48° N., longitude 114°-120° W., an area of about 47,000 square miles. Radio range at Walla Walla added and an accumulation of changes included since the last edition.

Trinidad—July 1941. Size, 20 by 44 inches. Located in latitude 36°-38° N., longitude 102°-108° W., an area of about 53,000 square miles. Civil airways revised and an accumulation of changes since the last edition.

Wichita—August 1941. Size, 20 by 44 inches. Located in latitude 36°-38° N., longitude 96°-102° W., an area of about 53,000 square miles. Hutchinson radio range added and civil airways revised.

Aviation Gas

(Continued from page 239)

ing capacity with a minimum of delay in order that it may fully provide whatever may be required in the way of aviation gasoline. This is good insurance against the future, come what may."

Mr. Davies stated that in general the industry plans to finance and make the necessary plant additions, although Government financing may be required in some instances.

Status of Parts of the Civil Air Regulations and Amendments

As of September 1, 1941

All persons affected by the Civil Air Regulations, including those preparing for examinations for certificates, may obtain required Parts of the Regulations from the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C., without charge.

ONLY PARTS NEEDED SUPPLIED FREE

For example, *pilots* are governed in general by Parts 01., 20., 60., and 98; *aircraft mechanics* by Parts 01., 04., 15., 18., 24., 98., and Section 60.32; and *aircraft engine mechanics* by Parts 01., 04., 13., 14., 18., 24. and 98. It should be remembered that individuals are entitled to receive free of charge only those portions of the C. A. R. which directly govern the activity in which they are engaged and this activity must be definitely stated when request is made.

HOW TO OBTAIN PARTS, AMENDMENTS, AND MANUALS

Those persons not affected by the C. A. R., but desiring all or any part of the Regulations for other purposes, may obtain them as follows: Those Parts on

which a price is listed in the tabulation below are on sale by the Superintendent of Documents, U. S. Government Printing Office (shown as G. P. O. in table), Washington, D. C., and are not available for free distribution except as stated in the first paragraph.

Eventually, all Parts will be placed on sale; meanwhile, Parts not yet on sale (carrying remark in tabulation below "order from C. A. A. only") may be obtained without charge from the C. A. A. upon demonstration of valid interest on the applicant's part.

ALL AMENDMENTS TO THE CIVIL AIR REGULATIONS, AND NOTICE OF NEW PARTS, ARE PRINTED IN THE OFFICIAL ACTIONS SECTION OF THE CIVIL AERONAUTICS JOURNAL, AS RELEASED.

The tabulation below carries in the right-hand column the numbers of all effective amendments to each Part issued subsequent to its publication. Parts ordered from C. A. A. include all

effective amendments, but when Parts are purchased from G. P. O. amendments must be requested separately from C. A. A.

Civil Aeronautics Manuals supplementing certain Parts with detailed interpretations of their respective provisions are issued. They are numbered the same as the Parts they supplement, and those Parts accompanied by Manuals carry appropriate notations. All Manuals are obtained from C. A. A. only, without charge.

PARTS CANCELLED AND UNASSIGNED

Cancelled Parts 00. and 03. now incorporated in Part 01.; cancelled Part 23. now incorporated in Part 51.; and cancelled Part 25. now incorporated in Part 24. Parts 90.-96., inclusive, cancelled. All other Part numbers not shown are unassigned.

Bound volumes of the complete Civil Air Regulations are no longer available. Parts and amendments are punched for filing in loose-leaf binders.

PART No.	TITLE	DATE	REMARKS	PRICE	EFFECTIVE AMENDMENTS
AIRCRAFT					
01	Aircraft Registration and Airworthiness Certificates.	6-1-41	In stock at C. A. A. and on sale at G. P. O.	\$0.05	
02	Type and Production Certificates.	3-1-41	In stock at C. A. A. and on sale at G. P. O.	.05	
04	Airplane Airworthiness (Manual 04, 2-1-41.)	4-1-41	In stock at C. A. A. and on sale at G. P. O.	.15	116.
13	Aircraft Engine Airworthiness (Manual not issued).	8-1-41	Not in stock.		
14	Aircraft Propeller Airworthiness (Manual 14, 12-1-38).	11-15-40	In stock; order from C. A. A. only.		
15	Aircraft Equipment Airworthiness (Manual 15, 7-1-38).	11-15-40	In stock; order from C. A. A. only.		
16	Aircraft Radio Equipment Airworthiness (Manual, 2-13-41.)	2-13-41	In stock at C. A. A. and on sale at G. P. O.	.05	
18	Maintenance, Repair, and Alteration of Certified Aircraft and of Aircraft Engines, Propellers, and Instruments. (Manual 18, 6-1-41.)	6-1-41	In stock; order from C. A. A. only.		
AIRMEN					
20	Pilot Certificates.	5- 1-40	In stock at C. A. A. and on sale at G. P. O.	.05	63, 65, 67, 75, 82, 83, 87, 88, 90, 101, 107, 110, 111, 112, 115, 117, 118, 125, 126, 127.
21	Airline Transport Pilot Rating.	11-15-40	In stock; order from C. A. A. only.		87, 101, 115.
22	Lighter-Than-Air Pilot Certificates.	9-15-41	In stock; order from C. A. A. only.		
24	Mechanic Certificates.	5- 1-40	In stock at C. A. A. and on sale at G. P. O.	.05	44, 61, 73, 75, 87, 109.
26	Air-Traffic Control-Tower Operator Certificates.	10-4-40	In stock at C. A. A. and on sale at G. P. O.	.05	87.
27	Aircraft Dispatcher Certificates.	7-15-40	In stock at C. A. A. and on sale at G. P. O.	.05	74, 75, 87.
AIR CARRIERS					
40	Air Carrier Operating Certification (Interstate).	11-1-40	In stock at C. A. A. and on sale at G. P. O.	.05	85, 89, 102.
AIR AGENCIES					
50	Flying School Rating (Manual 50, 12-40.)	11-1-40	In stock at C. A. A. and on sale at G. P. O.	.05	87, 113.
51	Ground Instructor Rating.	5-1-40	In stock at C. A. A. and on sale at G. P. O.	.05	75, 87, 128.
52	Repair Station Rating (Manual 52, 2-41.)	5-1-40	In stock at C. A. A. and on sale at G. P. O.	.05	75, 84, 87.
53	Mechanic School Rating (Manual 53, 6-40.)	9-15-40	In stock at C. A. A. and on sale at G. P. O.	.05	75, 87.
AIR NAVIGATION					
60	Air Traffic Rules (Manual 60; Part 1, 12-1-40; Part 2, 8-1-40; Part 3, 12-1-40).	10-4-40	In stock at C. A. A. and on sale at G. P. O.	.10	50, 90, 93, 102, 104, 106, 108, 114, 119, 120, 121, 123, 124, Spec.
61	Scheduled Air Carrier Rules (Interstate).	1-1-41	In stock; at C. A. A. and on sale at G. P. O.	.05	91, 94, 97, 100, 102, 103, 115, 120, 122 ¹ , Spec. Reg. Ser.
MISCELLANEOUS					
98	Definitions.	11-15-40	In stock; order from C. A. A. only.		
99	Mode of Citation of Regulations.	11-15-40	In stock; order from C. A. A. only.		

¹ Amendment as issued by O. & I. Div. Release No. 50, 6-8-41.

² Amendment issued as C. & I. Div. Release No. 62, 8-12-41.

³ Amendment 4-14-41 issued by O. & I. Div. Release No. 45.

⁴ Effective 10-1-41.

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